

THE DERMAPTERA OF THE NEW HEBRIDES

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ABSTRACT

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The present paper is mainly based on two collections of Dermaptera from the New Hebrides, the first lodged in the South Australian Percy Sladen Trust Expedition to these islands from the 1971 Royal Society of London—Museum, and consisting of 118 specimens resulting in which the South Australian Museum participated. The second belongs to the B.P. Bishop Museum, Honolulu, and consists of 189 specimens collected over a number of years. A few additional specimens of Dermaptera from these islands belonging to the British Museum (Natural History) have also been examined, some being those recorded in Hincks (1952). All previous records of Dermaptera from the New Hebrides known to the present author are included, and two previous records are rejected—that of *Titanolabis colossea* (Dohrn) in Dohrn (1864), and that of *Labia canaca* Burr in Burr (1908). Keys are given to all families, subfamilies, genera and species and a total of 16 species are now recorded, of which three are new and are described. The composition of the Dermaptera fauna of the islands is discussed and comparisons made between this fauna and those of other groups of islands in the area of the Western Pacific and the Papuan Region.

INTRODUCTION

The first survey of known records of Dermaptera from the New Hebrides is that of Hincks (1938) in which three species were listed, one of which, *Titanolabis colossea* (Dohrn) was thought to be doubtful. Four additional species were recorded in Hincks (1947) and another species in Rehn (1948). Hincks (1952) examined a series of 77 specimens of Dermaptera collected in the New Hebrides by Miss L. E. Cheesman, and added six species to the fauna. Of the fourteen species thus recorded, however, the record of *Titanolabis colossea* is rejected; Dohrn (1864) listed the localities of *colossea* as Australia, New Caledonia, New Hebrides, and Fiji, but the location of any specimen is doubtful. There are large species of *Anisolabis* in New Caledonia which could be mistaken for *colossea*,

but they are not conspecific, nor congeneric with it. No large species of this family have since been recorded from the New Hebrides nor from Fiji, but the location of any specimen is doubtful. to Australia, where, if correctly recognised, it attains a considerable size, and is almost the largest of existing earwigs. The names *Prolabia arachidis* (Yersin) and *Marava wallacei* (Dohrn), listed in Hincks (1952) are now known to refer to forms of the same species (Hincks 1954). One species was only named to genus (*Labia* sp., Hincks, 1952), and the reference to *Nesogaster aculeatus* (Bormans) in Hincks (1947) is referable to *N. apicalis* Hincks (Hincks, 1952). The specimen recorded as *Labia canaca* Burr, by Burr (1908) and Hincks (1938) has been examined and is a female of one of the species described as new in the present paper.

Recently, an expedition organised jointly by the Royal Society of London and the Percy Sladen Trust, which included entomologists from the South Australian Museum and the CSIRO Division of Soils in Adelaide, undertook a survey of the New Hebrides; the 118 specimens of Dermaptera resulting from the survey have been examined by the present author. In addition 189 specimens of Dermaptera from these islands belonging to the B.P. Bishop Museum, Honolulu, have been studied. These specimens are recorded in the present paper, which includes all previous records known to the author. The paper thus attempts to provide a complete survey of the known Dermaptera of the New Hebrides, and keys are given to all families, subfamilies, genera, and species represented. Notes on the composition of the fauna and comparison of this with those of other groups of islands in the Western Pacific and in the Papuan Region are included. A total of 16 species are now known from the New Hebrides, of which three are described as new.

My sincere thanks are due to Mr. G. F. Gross, of the South Australian Museum, Adelaide, and to Dr. J. Linsley Gressitt, of the B.P. Bishop Museum, Honolulu, for the opportunity to examine the respective collections of Dermaptera under their care. I am also indebted to Dr. D. R. Ragge and Mrs. J. Marshall for freely granted facilities in examining specimens of Dermaptera in the British Museum (Natural History), London.

The Dermaptera fauna of the New Hebrides (Table 1) is small, of 16 recorded species, but it is obviously related to the fauna of other island groups in the Western Pacific and the Papuan area. The Solomon Islands are the nearest to the north-west, and the south-eastern islands of Micronesia to the north-east. The Fiji islands lie to the east of the New Hebrides and the actual nearest island group to the New Hebrides is that of New Caledonia, with its associated Loyalty Islands. The Dermaptera of all these islands, except for Fiji, have recently been studied and the relationships of the Dermaptera fauna are now better understood.

The Solomon Islands, as a group, are much larger in area than those of the New Hebrides; they are relatively close to New Guinea, have a much richer fauna, and mark the eastern limit of a number of Papuan genera. The islands of Micronesia are smaller, widely scattered and have 24 species, whilst New Caledonia and the Loyalty Islands have 18 species.

All the genera recorded from the New Hebrides occur in the Solomon Islands and all, except for *Sphingolabis*, occur in Micronesia, but three genera are absent from New Caledonia. This indicates that the Dermaptera fauna of the New Hebrides has extended from New Guinea into the Solomon Islands and further south to the New Hebrides. The New Hebrides have five endemic species, (about 31 per cent of species) which account for 18 per cent of the number of specimens examined. The endemic species thus form less of the population of Dermaptera than the number of species would suggest, and this feature is true of the Solomon Islands, and more

particularly of Micronesia. In contrast the endemic species of New Caledonia are dominant. The influence of cosmopolitan species, however (excluding *Chelisoches morio* (F.)), is much less in the New Hebrides (18 per cent of species but only 6 per cent of specimens) than in either the Solomon Islands or Micronesia, indicating that the New Hebrides are somewhat off the general distribution range of the cosmopolitan species. The term "cosmopolitan" species has been generally used in the Dermaptera for species with a very wide world distribution, which to some extent may be due to accidental introduction, but recent work is clarifying these distributions and the status of some cosmopolitan species may have to be modified. *Chelisoches morio* (F.) although classed as a cosmopolitan species, is now known to be mainly a dominant Pacific and Papuan species; it extends westwards to India and Ceylon, where it is not common, and is probably adventive in Madagascar, and certainly adventive in Africa and elsewhere. It is well represented in the New Hebrides, as in Micronesia, but less well represented in the Solomon Islands, and much less well represented in New Caledonia.

There are four Australasian species recorded from the New Hebrides, so the influence of the Australasian fauna is clear, and these species account for nearly one quarter of the total specimens examined. There are also three Pacific species (excluding *C. morio*), i.e. one Oriental-Pacific; one Australasian-Pacific; and one entirely western Pacific species, and these account for about one fifth of the total number of specimens. The position of the New Hebrides in the western Pacific, but close to the Australasian Region,

TABLE 1
DISTRIBUTION OF DERMAPTERA IN THE NEW HEBRIDES

	Vanua Lava	Espiritu Santo	Maewo	Aoba	Pentecost	Malekula	Epi	Efate	Erromanga	Tanna	Anelityum	World distribution
Carcinophoridae—												
Carcinophorinae—												
1. <i>Euborellia annulipes</i> (Lucas) . . . . .	.	X	X	X	.	X	.	X	X	.	X	Cos. Aus.
2. <i>Anisolabis verhoeffi</i> Zacher . . . . .	.	X	.	.	.	.	.	.	.	.	.	End.
Brachylabiinae—												
3. <i>Brachylabis cordata</i> sp.n. . . . .	.	X	.	.	.	.	.	.	.	.	.	End.
Labiidae—												
Nesogastrinae—												
4. <i>Nesogaster apicalis</i> Hincks	X	X	X	X	X	X	.	X	.	.	X	Aus. End.
5. <i>N. bakeri</i> Hincks . . . . .	.	X	.	.	.	.	.	.	.	.	.	End.
Sparattinae—												
6. <i>Auchenomus insularis</i> sp.n. . . . .	.	X	.	.	.	.	.	.	.	.	.	End.
Labiinae—												
7. <i>Chaetolabia stoneri</i> (Caudell) . . . . .	.	.	.	X	.	.	.	.	X	.	.	Pac. End.
8. <i>C. dentata</i> sp.n. . . . .	.	X	.	X	.	X	.	.	X	.	.	Cos.
9. <i>Labia curvicauda</i> (Motschulsky) . . . . .	.	X	.	X	.	X	.	.	X	.	.	Aus.
10. <i>L. bituberculata</i> Brindley . . . . .	.	X	X	X	.	X	X	.	X	X	.	O-P
11. <i>Sphingolabis hawaiiensis</i> (Bormans)	X	X	X	X	.	X	.	.	X	.	.	A-P
Spongiphorinae—												
12. <i>Marava arachnilla</i> (Yersin) . . . . .	.	X	.	.	.	X	.	.	X	.	.	Cos.
13. <i>M. feae</i> (Bormans) . . . . .	.	X	.	.	.	.	.	.	.	.	.	Aus.
Chelisochidae—												
14. <i>Chelisoches morio</i> (Fabricius)	X	X	X	X	.	X	.	X	X	X	X	Cos. End.
15. <i>C. cheesmanae</i> Hincks	X	.	.	.	.	.	.	X	X	.	.	End. A-P
16. <i>Halmoxys nigrorufus</i> (Burtt) . . . . .	.	X	.	.	.	.	.	.	.	.	.	A-P

Aus. = Australian Cos. = Cosmopolitan A-P = Australasian-Pacific O-P = Oriental-Pacific Pac. = Pacific End. = Endemic

could be expected to produce a balance between the Australasian and Pacific fauna, and this is the type of Dermaptera fauna found in the New Hebrides.

Key to families and subfamilies

1. Elytra and wings completely absent; male genitalia with two distal lobes, one directed backwards and one directed forwards at rest (Fig 2) (Carcinophoridae) 2
- At least elytra present, wings often visible; male genitalia with a single median distal lobe (Fig. 26) 3
2. First antennal segment shorter than the distance between the antennal bases; body depressed, not fusiform; branches of forceps of both sexes trigonal at bases, with a short dorsal ridge on each; male forceps asymmetrical (Fig. 1) Carcinophorinae
- First antennal segment longer than the distance between the antennal bases; body less depressed, fusiform; branches of forceps of both sexes cylindrical, not trigonal at bases, and symmetrical (Fig. 5) Brachylabiinae
3. Second tarsal segment prolonged beneath third (distal) segment as a narrow lobe; male genitalia with two dark paired sclerites associated with the virga (Fig. 26) Chelisochoidea
- Second tarsal segment simple; male genitalia without two dark paired sclerites but often with a complex arrangement of denticulations and sclerites associated with the virga (Labiidae) 4
4. Head flat; body strongly depressed; first antennal segment as long as distance between the antennal bases or almost so; pronotum narrowed anteriorly, forming a distinct neck (Fig. 28) Sparattinae
- Head normally convex; body less depressed; first antennal segment shorter than the distance between the antennal bases; pronotum without such a distinct neck 5
5. Each elytron with a distinct lateral longitudinal ridge (Fig. 6) Nesogastriinae
- Elytra without such ridges 6
6. Third antennal segment shorter than fifth; elytra usually punctured and pubescent Labiinae
- Third antennal segment longer than fifth or almost so; elytra glabrous and impunctate Spongiphorinae

CARCINOPHORIDAE

A large family, poorly represented in the Pacific and in the Australasian Region, the species being typically dark coloured apterous earwigs with short forceps, those of the male often being asymmetrical. A minority of species have rudimentary elytra and sometimes both elytra and wings are fully developed. Two subfamilies are now recorded from the New Hebrides.

CARCINOPHORINAE

The largest subfamily, the species having rather short basal antennal segments, a depressed body, relatively short legs, and often a shining and more or less glabrous cuticle. The punctuation of the abdominal tergites may be stronger

in the males than in the females, and a frequent feature of the males is the presence of well defined lateral longitudinal ridges on the posterior abdominal tergites, one ridge occurring on each side of a tergite; a dorso-median longitudinal ridge may also be present on the last (tenth) tergite. The penultimate sternite may have the apex excised in males but not in the females. The determination of the species is based on the male genitalia, and there are few suitable external characters.

Key to genera and species

1. Parameres of male genitalia about as broad as long; each distal lobe of genitalia without a visible virga and with denticulated pads. Male penultimate sternite not excised at apex *Euborellia annulipes* (Lucas)
- Parameres of male genitalia long and slender, much longer than broad; each distal lobe of genitalia with a visible virga, but without denticulated pads (Fig. 2). Male penultimate sternite excised at apex (Fig. 4) *Anisolabis verhoeffi* Zacher

Euborellia annulipes (Lucas)

Forficesila annulipes Lucas, 1847, *Ann. Soc. ent. France* (2) 5: 84 (Paris, introduced).

Anisolabis annulipes (Lucas); Burr, 1911, *Genera Insectorum* 122: 29.

Euborellia annulipes (Lucas); Burr, 1915, *J. R. Micr. Soc.* 1915: 545.

Anisolabis annulipes (Lucas); Rehn, 1948, *Trans. Am. ent. Soc.* 74: 160 (Erromanga).

A rather small blackish, shining species, legs yellow with femora usually banded with blackish; antennae brown or dark brown, one or more distal segments white. Head transverse, eyes small, pronotum more or less as broad as long, wider posteriorly; elytra and wings completely absent. Penultimate sternite of male with apex rounded. Forceps short, trigonal at base, those of male rather asymmetrical, those of female symmetrical.

Length of body 8-11 mm, *forceps* 1-1.5 mm.

World distribution: Cosmopolitan; occurs in all faunal Regions, often as an adventive.

Remarks: The above record of Rehn (1948) appears to be the only one from the New Hebrides, and may possibly be due to confusion with *Anisolabis verhoeffi*, which is superficially similar to *E. annulipes*.

Location of type:

Holotype ♀ in Paris museum.

Anisolabis verhoeffi Zacher

Figs. 1-4

Anisolabis verhoeffi Zacher, 1911, *Zool. Jb.* **30**: 374 (Bismarck Archipelago).

Anisolabis verhoeffi Zacher: Hincks, 1947, *Entomologist's mon. mag.* **83**: 65 (Espiritu Santo).

Anisolabis verhoeffi Zacher: Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 200 (Espiritu Santo; Malekula).

Dark brown to blackish, antennae dark brown, sometimes with one or more distal segments pale yellow or whitish; legs yellowish, femora usually darkened for basal half. Head, and thoracic nota impunctate, glabrous; abdominal tergites sparsely and finely punctured and pubescent.

Male (Fig. 1): Head transverse, tumid, eyes small. Pronotum strongly transverse, more or less rectangular; elytra and wings completely absent; abdomen broad, depressed, tergites 6-9 with lateral ridges, those on sixth tergite extending for distal half only, those on ninth tergite also short, but those on seventh and eighth tergites almost complete; last tergite with a dorso-median ridge towards each side, the ridge curved medially posteriorly, and posterior part of tergite depressed; penultimate sternite with apex concave, the lobes pointed (Fig. 4). Branches of forceps trigonal at base, cylindrical distally, those of male often asymmetrical (Fig. 1) or almost symmetrical, those of female symmetrical and straighter. Genitalia of male with two basal penes, parameres long with a median darker membranous flap, virga narrow and long (Fig. 2); slight variations in the exact shape of the parameres occur in genital mounts due to slight distortion (Fig. 3).

Length of body 7-9 mm, *forceps* 1.25-1.75 mm.

World distribution: Bismarck Archipelago and New Hebrides.

Remarks: Specimens of *A. verhoeffi* from the original area (Bismarck Archipelago) in the British Museum (Natural History) have recently been examined, and appear to be conspecific with the present specimens from the New Hebrides. The species is variable in general appearance and colour, but all the males examined have the same type of excision in the penultimate sternite whilst the male genitalia are identical. *A. verhoeffi* is closely similar to *A. horvathi* Burr from New Guinea, *A. bifida* Brindle from the Solomon Islands, and *A.*

minutissima Brindle from the Western Caroline islands. The latter two species have a less excised male penultimate sternite, although in *verhoeffi* the pointed lobes tend to curl dorsally and may seem blunt at first sight. The males of *A. horvathi* and *A. bifida* have lateral longitudinal ridges on abdominal tergites 7-9, whilst both *A. minutissima* and *A. verhoeffi* have similar ridges on abdominal tergites 6-9, the ridges on both tergites 6 and 9 being short. *A. minutissima* is smaller in body length (6 mm) than *verhoeffi* (7-9 mm) and the punctuation and pubescence of the tergites of the latter species are much more sparse than in the former. The male genitalia of these four species are similar in structure and differ only in minor details.

Location of type:

♂ in Berlin museum.

Material examined:

ESPIRITU SANTO: From litter, flat terrace, E bank Apuna River Campsite No. 2, 10 km SSW of Malau village, Big Bay area, 27.VIII.1971, 1 ♂, 2 larvae, J. C. Buckerfield; terrace of Apuna River, 15° 13' S, 166° 50' E, lowland rainforest, Coll. No. NH 49, 13.IX.1971, 1 ♀, 1 larva, K. E. Lee (SAM).

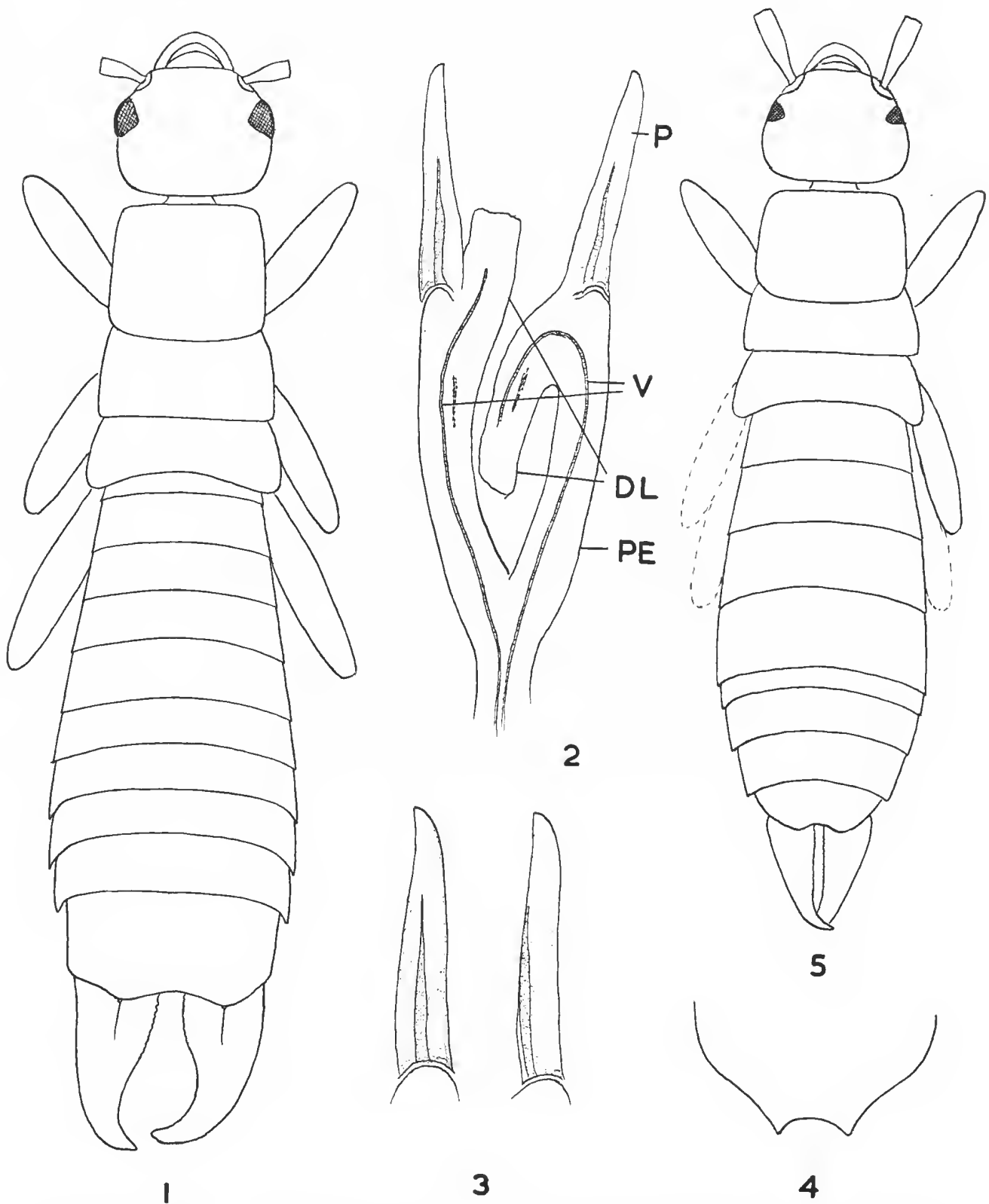
MAEWO: Above Nasaua, 180 + m, 4.IX.1958, 1 ♂, B. Malkin (BISHOP).

AOBA: Dunduy, 6/8.IX.1958, 2 ♂, B. Malkin (BISHOP).

MALEKULA: SW Malekula, 16° 28' S, 167° 27' E, mesophyll rainforest, Coll. No. NH 68, 11.X.1971, 1 ♀, 3 larvae, K. E. Lee; SW Bay, 16° 29' S, 167° 26' E, disturbed forest grazed by cattle, Coll. No. NH 63, 2 ♀, 1 larva, K. E. Lee; SW Malekula, 16° 28' S, 167° 27' E, Meso-noto vine forest, NH 67, 11.X.1971, 1 ♀, 2 larvae, K. E. Lee; SW Malekula, 16° 29' S, 167° 27' E, cocoa plantations with some coconuts, Coll. No. NH 69, 13.X.1971, 1 ♂, 1 larva, K. E. Lee, (SAM).

EFATE: From litter, terrace surface in ridge, 400 m, down ridge from Narabut Camp site, 2.VII.1971, 1 larva, J. C. Buckerfield; SE Efate, 17° 45' S, 168° 24' E, coastal forest on recently raised beach, NH 19, 13.VII.1971, 1 larva, K. E. Lee, (SAM).

ERROMANGA: From *Pandanus* epiphytes, 2 km NNE of Nuankau River bridge on secondary milling road, 10 km WSW of Ipotak, 4.VIII.1971, 1 ♀, K. E. Lee; S. Erromanga, 18° 53' S, 169° 12' E, *Agathis-Calophyllum*



Figs. 1-4, *Anisolabis verhoeffi* Zacher—1, male—2, male genitalia—3, male parameres—4, male penultimate sternite. Fig. 5, *Brachylabis cordata*, sp.n., female. (DL=distal lobe; P=paramere; PE=penis; V=virga).

high canopy rainforest, Coll. No. NH 33, Coll. No. NH 34, 4♂, 2♀, 4 larvae, K. E. Lee; S. Erromanga, 18° 54' S, 169° 11' E, *Agathis* forest, Coll. No. NH 35, 7.VIII.1971, 2 larvae, K. E. Lee (SAM).

ANEITYUM: SW Aneityum, 20° 15' S, 169° 46' E, fire-induced grassland, *Imperata* dominant, Coll. No. NH 27, 23.VII.1971, 1 very small larva, K. E. Lee (SAM).

The last recorded specimen has not been definitely named as this species but is thought to belong here, and the two larvae in the last record for Erromanga may not belong to this species although they appear to be Carcinophorine. One of these larvae has been removed and dried and appears to differ from the rest in the degree of puncturation and sculpture of the cuticle. These specimens are provisionally assigned to this species.

BRACHYLABIINAE

This subfamily is characterised by the long first antennal segment, the fusiform abdomen and by the relatively long legs; the cuticle may be shining, often punctured, sometimes very strongly so, or may be rugose and dull, often strongly pubescent; the forceps of both sexes are often similar, almost always cylindrical, and relatively slender.

No representative of this subfamily has previously been recorded from the New Hebrides, but a single female specimen is in the present material and is placed in the genus *Brachylabis* Dohrn.

Brachylabis cordata sp.n.

Fig. 5

Black, posterior parts of tergites of abdomen with a reddish tint; lateral margins of pronotum yellow; antennae blackish, segment 10 (last in type) somewhat paler; legs yellowish-brown, femora vaguely darkened; forceps dark red. Cuticle rugose, rather shining, with rather sparse, relatively long but fine yellow hairs, more conspicuous laterally on abdomen.

Female (Fig. 5): Head transverse, almost cordiform in shape; eyes small. Antennae 10-segmented in type, first segment long, second transverse, third segment four times as long as broad, evenly widened distally, fourth segment one and half times as long as broad, fifth segment one and three-quarters as long as broad, sixth twice as long as broad; distal segments shorter and relatively wider than basal segments. Pronotum strongly transverse, slightly widened posteriorly, margins more or less straight; an impressed smooth line occurs medially on

anterior half, with short similar lines on each side. Mesonotum broad, with a broad lateral fold at base but without lateral longitudinal ridges. Only two first legs and right median leg present in type.

Abdomen fusiform, scarcely depressed, last tergite small; each branch of forceps very short, cylindrical, wider at base, apex slender and curved.

Length of body 7 mm, *forceps* 1 mm.

Remarks: The description of a species on a single female is usually not desirable in the Dermaptera, where the taxonomy is so largely based on the male genitalia. In the Brachylabiinae, however, the sexes are almost always similar, although the male forceps may be more strongly curved than those of the female, so that the male can be recognised from the description of a female. The external taxonomic characters are usually good in this subfamily, unlike those in the Carcinophorinae, where isolated females cannot be identified with any certainty. The structure of the male genitalia is still necessary to place the species without doubt in a genus, but at present the present author has been placing all new species in the genus *Brachylabis*, pending a revision of the World species of the subfamily.

B. cordata, however, is so closely similar in external characters to *Brachylabis greensladei* Brindle from the Solomon Islands and Micronesia, and to *Brachylabis yaloma* Ramamurthi from New Britain, that it seems possible that all are congeneric. There are sufficient external differences to separate these three species, so it has been thought desirable to name the species and describe it as new. These three species may be separated as follows:—

1. Pronotum longer than broad; body length 8.5 mm.
New Britain *yaloma* Ramamurthi
Pronotum transverse 2
2. Pronotum less strongly transverse, ratio of length to width 11:9. Antennae dark brown with two or more distal segments white, ratio of segments 4, 5, 6 = 1:1.25:1.5. Smaller species, body length 5.6-5 mm
greensladei Brindle
- Pronotum more strongly transverse, ratio of length to width 12.5:9. Antennae blackish, almost unicolorous, ratio of segments 4, 5, 6 = 1.5:1.75:2. Larger species, body length 7 mm *cordata* sp.n.

Location of type:

Holotype ♀, ESPIRITU SANTO: Nokovula, Mt. Tabwemasana track, 1325 m, 15° 22' S, 166° 44' E, Coll. No. NH 47, ex. litter, 4.IX.1971, K. E. Lee (SAM).

Material examined: The type only.

LABIIDAE

A large family, mainly of small species, and characterised by the simple second tarsal segment and by the male genitalia having a single distal lobe and virga. Represented in all faunal Regions. Four subfamilies are represented in the New Hebrides, with ten species, four being endemic, and of these three are described as new species.

NESOGASTRINAE

This subfamily includes the single Indo-Australian genus *Nesogaster* Verhoeff, which is distinctive since it is the only Indo-Australian genus in which the elytra have lateral longitudinal ridges and in which the cuticle is brightly shining and more or less glabrous. The only other Old World genera of the Labiidae in which lateral longitudinal ridges are present on the elytra are *Physogaster* Ramamurthi and *Parapericomus* Ramamurthi (Physogastrinae) but in these genera the body and forceps have long stiff hairs.

Key to Species

1. Larger, body length 6-8 mm; more uniformly coloured species; male pygidium blunt at tip or with a short narrower tip (Fig. 6); branches of female forceps relatively shorter and broader, dorso-median ridge (DR) at base forming two tubercles (Fig. 7)

bakeri Hincks

- Smaller, body length 4-6 mm; usually more contrastingly coloured species; male pygidium with a short wide base, distal part slender, narrowed distally (Fig. 11); branches of female forceps relatively longer and narrower, dorso-median ridge (DR) at base entire (Fig. 12) *apicalis* Hincks

***Nesogaster apicalis* Hincks**

Fig. 12

Nesogaster apicalis Hincks, 1951, *Ann. Mag. nat. Hist.* (12) **4**: 568 (Malekula, Espiritu Santo, Banks Is., Papua).

Nesogaster apicalis Hincks: Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 201.

Nesogaster apicalis Hincks: Brindle, 1971, *Entomologist's mon. mag.* **107**: 120.

Nesogaster aculeatus (Bormans): Hincks, 1947, *Entomologist's mon. mag.* **83**: 66 (δ , ♀ , Espiritu Santo).

Brown to dark reddish-brown, head reddish, antennae and legs yellow; last abdominal segment often reddish-brown or reddish-yellow, forceps reddish-yellow, sometimes partially darkened medially. Cuticle brightly shining, impunctate or almost so.

Head transverse, eyes small, antennal segments strongly moniliform; pronotum transverse, more

or less rectangular; elytra short, wings absent or concealed. Each branch of male forceps long, rather broad, inner margin flattened at base and with small denticulations, and with a double-toothed projection beyond midpoint, distal part of branch cylindrical and curved; pygidium wide at base, thence sharply narrowed and long (Fig. 11). Each branch of female forceps shorter and broader, inner margin with a dorso-median longitudinal ridge at base (Fig. 12, DR), distal part of branch with a ventral serrated flange, apex slender and curved (Fig. 12).

Length of body 4-6 mm, *forceps* 2.5 mm (males), 1.75 mm (females).

World distribution: New Guinea; New Britain; Solomon Islands; and New Hebrides.

Remarks: The description and length given above refer to the present specimens which are rather small and more brightly coloured. Specimens from other areas may be less contrastingly coloured and larger.

Location of types:

Holotype δ and paratypes in British Museum, paratypes in Manchester Museum.

Material examined: BANKS IS.: Vanua Lava, Sola, 5/11.VIII.1958, 1 δ , 2 larvae, B. Malkin (BISHOP). ESPIRITU SANTO: Luganville, 23/28.VII.1958, 2 δ , 5 ♀ , 19 larvae, B. Malkin; Narango, 90m, June, 1960, 1 ♀ , W. W. Brandt (BISHOP).

***Nesogaster bakeri* Hincks**

Figs. 6, 7

Nesogaster bakeri Hincks, 1947, *Entomologist's mon. mag.* **83**: 66 (Espiritu Santo).

Nesogaster bakeri Hincks; Hincks, 1951, *Ann. Mag. Nat. Hist.* (12) **4**: 572.

Nesogaster bakeri Hincks; Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 200 (Malekula, Espiritu Santo, Aneityum).

Dark reddish-brown, head reddish to reddish-brown, legs yellowish-brown, femora vaguely darkened; forceps and pygidium yellowish-brown or with a reddish tint. Cuticle brightly shining, abdominal tergites 4-9 of male or 4-7 of female punctured, middle tergites more strongly punctured than others, last tergite irregularly punctured.

Similar in structure to *apicalis*, but larger, more robust, and more uniformly coloured. Each branch of male forceps long and broad, with an inner tooth, basal part of branch with a flattened inner surface on which are small

denticulations or crenulations; pygidium large, long, somewhat variable in shape but usually broad for most of length and narrower only near apex (Fig. 6). Each branch of female forceps short and broad, excavated at base and with a dorso-median inner ridge forming two tuberculate-like projections (DR), distal part of branch with a ventral inner serrated flange, apex slender and incurved (Fig. 7).

Length of body 6-8 mm, *forceps* 3-5 mm (males), 2-2.5 mm (females).

World distribution: New Hebrides, endemic.

Location of type:

Holotype ♂ in Hope Department of Entomology, Oxford, England.

Material examined:

ESPIRITU SANTO: From logs and epiphytes on crest of main ridge leading SE from Nokovula to summit of Mt. Tabwemasana, 25 km SSW Malau village, Big Bay area, 4.IX.1971, 1 ♂, K. E. Lee; Nokovula, 1132 m, 15.IX.1971, 2 ♀, G. F. Gross; Nokovula, village, camp 4, 23 km SSW Malau village, Big Bay, 5.IX.1971, 1 ♀, J. C. Buckerfield; Nokovula village, camp 4, 1128 m, 10.IX.1971, 1? (abdomen missing), G. F. Gross (SAM); Namatasopa, 300 m, 28.VIII.1957, 1 ♀, 2 larvae, J. L. Gressitt; above Namatasopa, 400 m, 30.VIII.1957, 3 ♀, 2 larvae, J. L. Gressitt; below Namatasopa, 250 m, 1.IX.1957, 1 larva, J. L. Gressitt (BISHOP).

MAEVO: Above Nasua, 180+ m, 4.IX.1958, 4 ♂, 10 ♀, 1 larva, B. Malkin (BISHOP).

AOBA: Dundy, 6/9.IX.1958, 4 ♀, B. Malkin (BISHOP).

PENTECOST: 200-500 m, 27.II.1964, 1 ♀, R. Straatman (BISHOP).

MALEKULA: From rotten logs, gentle slope on broad ridge, 8 km NNW of summit of Mt. Yang'abalé, 45 km E of Tisvel village, 1.X.1971, 1 ♂, K. E. Lee (SAM); Amok, 17.IX.1958, 1 ♂, 1 ♀, B. Malkin (BISHOP).

EFATE: Terrace surface on ridge, camp site, Narabut, 1.VII.1971, 2 ♂, J. C. Buckerfield; from rotten logs, 500 m, NE Narabut camp site, 7.VII.1971, 1 larva, K. E. Lee; from rotten logs, terrace surface on ridge, 400 m, down ridge from Narabut camp site, 2.VII.1971, 2 larvae, J. C. Buckerfield (SAM); limestone plateau, N of Maat, 100 m, 20.VIII.1957, 8 ♂, 1 ♀, 2 larvae, J. L. Gressitt (BISHOP).

SPARATTINAE

Mainly Neotropical in distribution, and only represented in the Old World by a single genus, *Auchenomus* Karsch, which is distinctive by the strongly flattened head and body. The single species represented in the present material is new.

Auchenomus insularis sp.n.

Figs. 27, 28

Reddish-yellow to pale reddish-brown, elytra and wings somewhat darker; antennae pale yellow; legs dark yellow. Cuticle slightly shining, punctured and pubescent, hairs mainly short and yellow, more conspicuous laterally; abdominal tergites with longer hairs and with longer marginal setae.

Male (Fig. 28): Head broad, flat posterior margin concave; eyes small. First antennal segment about as long as distance between the antennal bases, second segment transverse, third segment three times as long as broad, fourth two and half times as broad as long, fifth longer than third, basal segments more or less cylindrical; distal segments shorter, twelfth (last in holotype) shorter than fourth, and more moniliform than basal segments. Pronotum as broad as long, narrowed posteriorly, lateral margins straight, posterior margin convex. Elytra and wings fully developed; legs relatively short, femora broad.

Abdomen mainly parallel-sided, narrowed towards base, flat; last tergite transverse, produced and raised above the base of each branch of the forceps, median part depressed. Each branch of forceps broad at base, with a dorso-median rounded tubercle, and with a ventro-median tooth beyond, last quarter of branch sharply curved medially (Fig. 28).

Female: Similar to male, branches of forceps shorter and broader, with a narrow ventral inner flange, evenly narrowed to distal third where each branch is more strongly narrowed forming a curved apex (Fig. 27).

Length of body 7-8 mm, *forceps* 2.5 mm (male), 2 mm (females).

Remarks: This species is distinctive by the shape of the forceps of both sexes. Those of the male are sharply curved distally, and in this resemble those of some of the Neotropical species of *Sparatta*, whilst those of the female are unusual in having the inner margin of each branch almost smooth, not dentated as in most species of the genus which occur in the Pacific and Australasian Region.

Location of types:

Holotype ♂, ESPIRITU SANTO: SW above Namatasopa, 400 m, 30.VIII.1957, L. G. Gressitt. Paratypes, same data, 4 ♀, (including allotype) (BISHOP, except 1 ♀ paratype in British Museum (Natural History) and in Manchester).

Material examined: The types and two further specimens, without posterior abdominal segments, same data.

LABIINAE

Three genera of this subfamily are now recorded from the New Hebrides, with a total of five species, one of which is new.

Key to genera and species

1. Branches of forceps of both sexes not strongly setulose, those of the males without a ventral inner flange, and those of the females narrowed from base to apex, with inner margin at most weakly dentated or crenulated 2
- Branches of forceps of both sexes strongly setulose, those of the males with or without a ventral inner flange, and those of the females not narrowed from base to apex, and inner margin with at least a ventral inner flange, the margins of which are strongly dentated or crenulated 3

2. Pronotum almost as wide as head and transverse; a broad, shorter, less depressed species with more slender branches of the forceps

Labia bituberculata Brindlie

Pronotum small, narrower than head, and quadrate or almost so; a more narrower, elongated, and strongly depressed species with broad short branches of the forceps *Labia curvicauda* (Motschulsky)

3. Larger species, body length 10 mm or more; antennal segments more or less cylindrical; elytra glabrous and impunctate . . . *Sphingolabis hawaiiensis* (Borrmans)

Smaller species, body length 8 mm or less; antennal segments moniliform; elytra punctured and pubescent 4

4. Smaller species, body length 6 mm or less; each branch of male forceps with one very large tooth on inner margin, pygidium large (Fig. 15); each branch of female forceps less strongly dentated, ventral inner margin differing strongly in dentation from dorsal inner margin (Fig. 16) *Chaetolabia stoneri* (Caudell)

Larger species, body length 7-8 mm; each branch of male forceps with two relatively large and one very small teeth on inner margin, pygidium small (Fig. 13); each branch of female forceps more strongly dentated, ventral inner margin more similar in dentation to dorsal margin (Fig. 14) *Chaetolabia dentata* sp.n.

***Chaetolabia stoneri* (Caudell) comb. nov.**

Figs. 8, 15, 16

Labia stoneri Caudell, 1927, *Univ. Iowa Studies* 12 (3): 5 (Fiji).

Yellowish to reddish-brown, elytra and wings somewhat darker; antennae brown; legs yellowish-brown; forceps and pygidium reddish-yellow. Cuticle of head impunctate and glabrous,

that of pronotum impunctate but with sparse short yellow hairs of elytra and wings punctured and pubescent; abdominal tergites pubescent and with long marginal setae.

A small and slender species (Fig. 8); elytra and wings fully developed, or with elytra shorter and only tips of wings protruding. Each branch of male forceps curved, with a large ventral inner tooth, pygidium almost pentagonal ventrally with a concave posterior margin, dorsal part of pygidium rounded (Fig. 15); each branch of female forceps straight, ventral inner margin dentated basally, dorsal inner margin scarcely dentated basally but dentated prominently from near midpoint, pygidium broad, ventral surface concave posteriorly, dorsal surface rounded; a small tubercle occurs medially near the posterior margin of the last tergite (Fig. 16).

Length of body 4.5-6 mm, *forceps* 1.25-1.5 mm.

World distribution: Fiji and New Hebrides.

Remarks: The original description and figure of the male forceps are excellent and the structure of the forceps and pygidium is characteristic.

Location of types:

Holotype ♂, allotype ♀, 1 paratype, 1 paratype ♀ in the United States National Museum.

Material examined: ERROMANGA: Ex light trap, Nuankau river, 5/7.VIII.1971, 1 ♂, 1 ♀, (fully winged), G. Robinson; under bark of log, 500 m SW of Nuankau river bridge, 10 km WSW of Ipotak, 7.VIII.1971, 1 ♀, (short elytra and wings), J. C. Buckerfield (SAM).

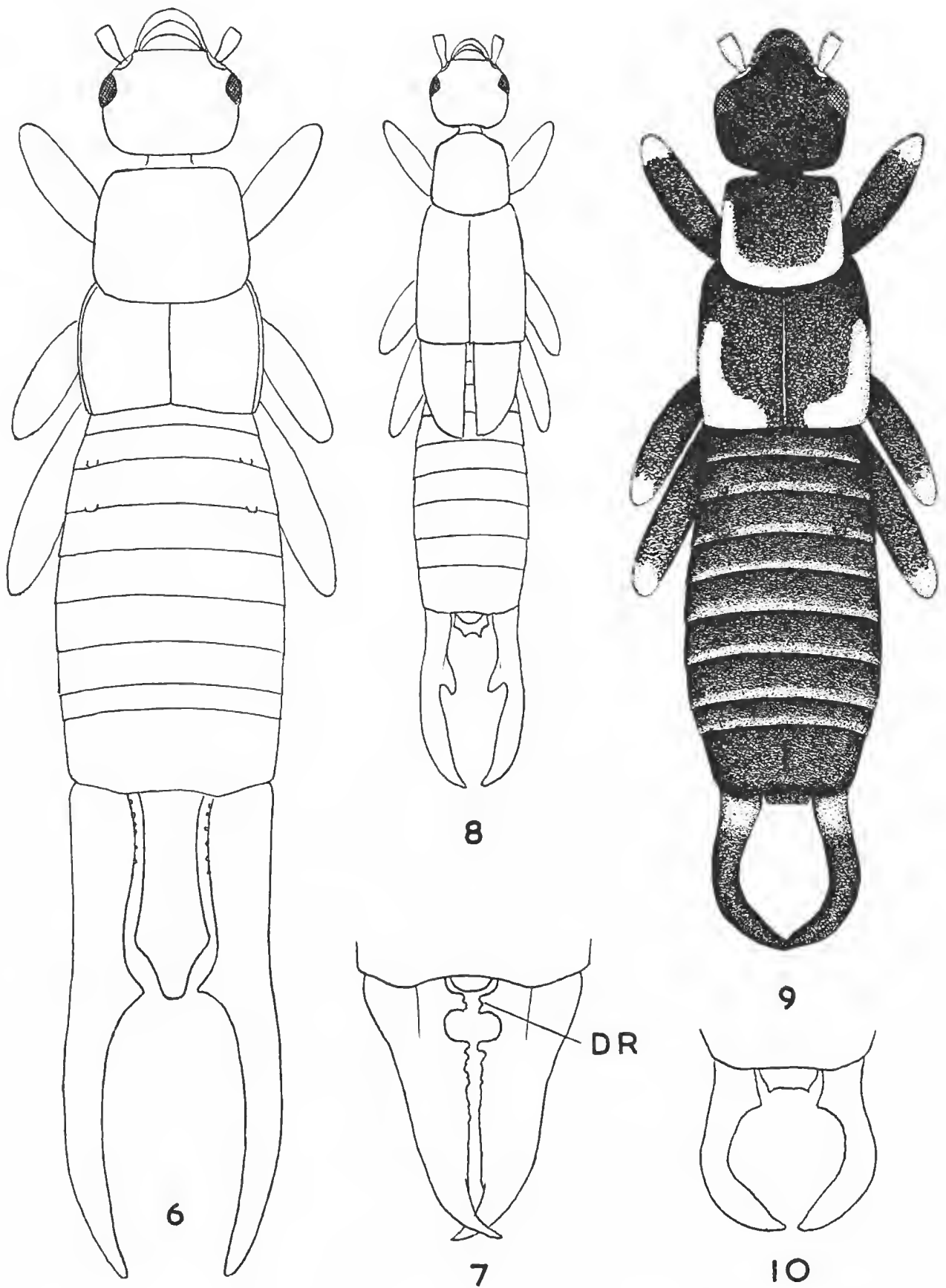
***Chaetolabia dentata* sp.n.**

Figs. 13, 14

Labia canaca Burr, 1908 (not Burr, 1903), *Bull. Mus. nat. Hist. nat. Paris* 1908: 32 (New Hebrides).

Reddish-brown; antennae yellowish to brown; legs yellow; forceps yellowish-brown. Cuticle of head and pronotum smooth, impunctate and glabrous, elytra and wings punctured and pubescent, hairs sparse and short, yellowish; abdominal tergites punctured and pubescent, more strongly on tergites 6-7; marginal setae present on most tergites; forceps with shorter hairs and long setae. Cuticle rather shining.

Male: Head tumid, cordiform, transverse, eyes small. First antennal segment rather shorter than the distance between the antennal bases, second segment transverse, third two and half times as long as broad, fourth equal to third in



Figs. 6-7, *Nesogaster bakeri* Hincks—6, male—7, female forceps.
 Fig. 8, *Chaetolabia stoneri* (Caudell). Figs. 9-10, *Marava feae* (Bormans)—9, male, New Hebrides—10, male forceps, Australia. (DR=dorsal ridge).

length, fifth three times as long as broad; distal segments as long as fifth, each segment narrowed to base, all segments pubescent. Pronotum slightly longer than broad, strongly widened posteriorly, lateral margins straight, posterior margin convex. Elytra and wings fully developed or short.

Abdomen relatively long, somewhat depressed, lateral tubercles on third and fourth tergites very small. Each branch of forceps weakly curved with one tuberculate median tooth on inner margin near base and a second small median tooth towards apex; a very small ventral tooth occurs distal to basal tooth; pygidium small, narrowed posteriorly (Fig. 13).

Female: Similar to male, but last tergite with a median tubercle near posterior margin; each branch of forceps straight except at apex, broad, apex curved, ventral and dorsal inner margins with similar dentation, consisting of one larger tooth about one third from apex, followed by three smaller teeth beyond midpoint (ventral margin with only two), a distal tooth occurs only on the ventral margin; pygidium short and broad (Fig. 14).

Length of body 7-8 mm, forceps 2.75 mm (male), 1.5 mm (females).

Remarks: In addition the female specimen from the New Hebrides, without exact locality, recorded by Burr (1908) as *Labia canaca* Burr, is in the British Museum (Natural History) and proves to be a female of the present species, and is hereby designated as a paratype. The locality label reads "N. Hebrides francais" whilst a second label reads "*Labia canaca* Burr ♀". *Labia canaca* is restricted to New Caledonia.

The specimen from Aneityum is the only specimen in which the elytra and wings are fully developed: it has been named by the shape of the pronotum and other details of the anterior part of the insect which are adequate for the known New Hebrides fauna, but it is possible that there is another species in the New Hebrides, and without the forceps it is not possible to be entirely certain about its identity. The pronotum is rather more transverse in this specimen than in the others.

There are three known species of *Chaetolabia* from other areas in the Western Pacific, but none are yet known from the Australasian Region. These three species, together with the two now recorded from the New Hebrides may be separated as follows:—

1. Each branch of the male forceps with a very large inner tooth (Fig. 15); each branch of the female

forceps with the inner dorsal edge scarcely dentated at base and merging with the ventral inner edge beyond midpoint (Fig. 16) *stoneri* (Caudell)
Branches of male forceps with small inner teeth or a tooth; dorsal inner edge of female forceps dentated from base 2

2. Pronotum parallel-sided; male pygidium narrowed to apex; female pygidium broad, short, narrowed distally, apex concave. Micronesia (Palau) *spicata* Brindley
Pronotum widened posteriorly 3

3. Male pygidium short, partly hidden by basal inner teeth of forceps (Fig. 13); inner margin of each branch of female forceps irregularly dentated, with teeth of varying sizes (Fig. 14) *dentata* sp.n.
Male pygidium large, or long, not hidden by inner teeth; inner margin of each branch of female forceps regularly dentated with small teeth of almost equal size 4

4. Male pygidium large, as long as broad, narrower at base but widened distally with margin curved, and apex deeply concave; last tergite of female with a small median dorso-posterior projection. Micronesia (Ponape; Kusaje) *esakii* (Menozzi)
Male pygidium long, narrow, almost parallel-sided, apex concave; last tergite of female with a larger median dorso-posterior projection. Micronesia (Ponape; Truk) *appendicina* (Menozzi)

Labia canaca Burr from New Caledonia has a male pygidium similar to that of *esakii*, but the pygidium of *canaca* is not narrowed at base and is more deeply excised posteriorly; the female of *canaca* has the inner margin of each branch of the forceps irregularly dentated as in *dentata*, but the pygidium is not short and broad but longer than broad and ending in two irregular posterior projections, the projections separated by a median concavity.

Location of types:

Holotype ♂, AOBA: Dunduy, 6/8.IX.1958, B. Malkin; allotype ♀, same data; both in the Bishop Museum.

ERROMANGA: 1 ♀ paratype, Nuankau river camp, 7.VIII.1971, G. F. Gross in the South Australian Museum.

Material examined:

The types and ANEITYUM: Red Crest, 1 200ft., 3 m NE of Anelcauhaf, III.1955, 1 ♀ (end of abdomen missing), L. E. Cheesman (BRIT. MUS.).

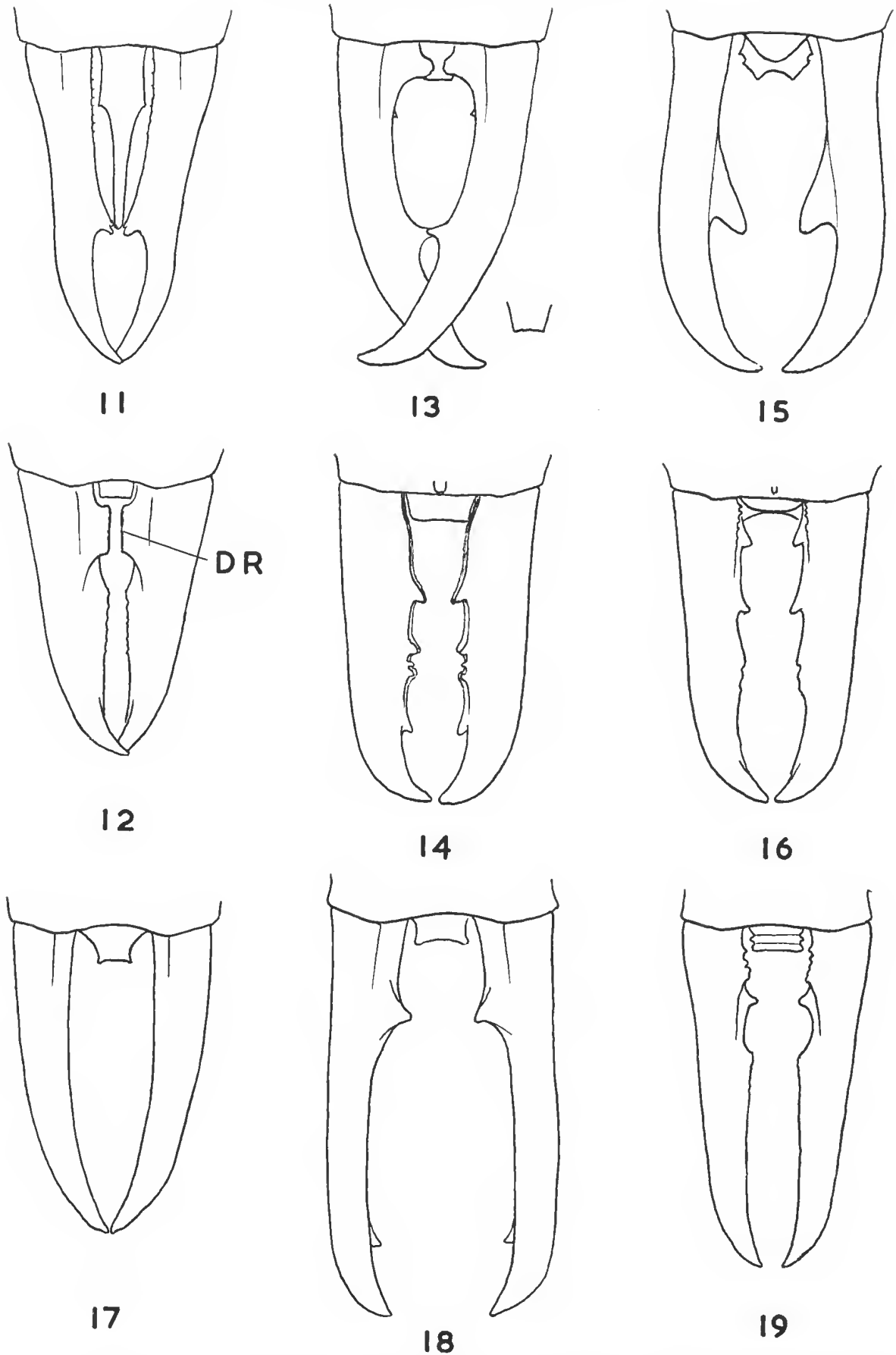
Labia curvicauda (Motschulsky)

Figs. 22, 23

Forficisila curvicauda Motschulsky, 1863, *Bull. Soc. nat. Moscou* 36: 2 (Ceylon).

Labia curvicauda (Motschulsky); Hincks, 1952, *Ann. Mag. nat. Hist.* (12) 5: 201 (Espiritu Santo; Malekula; Erromanga).

Blackish, abdomen reddish, legs yellow with femora partially darkened, antennae yellow or brown pronotum sometimes yellow.



Figs. 11-19, forceps—11, 12, *Nesogaster apicalis* Hincks, male and female—13-14, *Chaetolabia dentata* sp.n. male and female—15-16, *Chaetolabia stoneri* (Caudell), male and female—17, *Labia bituberculata* Brindle, male—18-19, *Sphingolabis hawaiiensis* (Bormans), male and female. (DR=dorsal ridge).

A small depressed species usually recognisable by the relatively small pronotum, which is parallel-sided, and the short broad branches of the forceps. Elytra and wings fully developed, legs short. Each branch of male forceps curved, with a basal wider part, pygidium broad (Fig. 22). Each branch of female forceps broad, more or less straight, and narrowed distally (Fig. 23).

Length of body 4.5 mm, *forceps* 0.75-1.25 mm.

World distribution: Cosmopolitan, in all faunal Regions, but mainly adventive in temperate countries.

Location of types:

Believed lost.

Material examined:

ESPIRITU SANTO: Luganville, 20.VII.1958, 1 ♀, B. Malkin (BISHOP).

AOBA: Dunduy, 6/8.IX.1958, 1 ♂, B. Malkin (BISHOP).

Labia bituberculata Brindle

Fig. 17

Labia bituberculata Brindle, 1970, *Pacific Insects* 12 (3): 675 (Solomon Islands).

Reddish-brown to blackish; cuticle punctured and pubescent. A short broad species, very similar to *Labia pilicornis* (Motschulsky) in the dark form, but distinguished by the structure of the male pygidium, which is smaller than that of *pilicornis*, the latter having a larger triangular pygidium. Elytra and wings normally developed. Each branch of male forceps simple, evenly and weakly curved (Fig. 17); each branch of female forceps similar to those of *curvicauda* (Fig. 23), but much more slender.

Length of body 4.5 mm, *forceps* 1-1.25 mm.

World distribution: Solomon Islands (San Cristobal) and New Hebrides.

Location of types:

Holotype ♂, allotype ♀ in the British Museum.

Material examined:

ESPIRITU SANTO: At light, Apuna river camp 2, 146 m, 30.VIII.1971, 1 ♀, G. F. Gross (SAM).

ERROMANGA: 18° 53' S, 169° 12' E, *Agathis-Calophyllum* high canopy rainforest, NH 33, 3.VIII.1971, 1 ♂, K. E. Lee (SAM).

The above specimens are blackish and much darker than the original material.

Sphingolabis hawaiiensis (Bormans)

Figs. 18, 19

Forficula hawaiiensis Bormans, 1882, *Ann. Mus. civ. Stor. nat. Giacoma Doria* 18: 341 (Hawaii).

Sphingolabis hawaiiensis (Bormans); Hincks, 1947, *Entomologist's mon. mag.* 83: 67 (Banks Is.; Espiritu Santo; Elephant Is. ?).

Very dark reddish or purplish brown, base of wings yellow. Cuticle of head and pronotum more or less impunctate and glabrous, elytra and wings pubescent, hairs sparse and rather long, yellow; abdominal tergites punctured and pubescent, hairs short and yellow, but with long yellow setae in addition; forceps with long golden setae (Figs. 18, 19).

Length of body 10-13 mm, *forceps* 5-6 mm (males) 3.5-4 mm (females).

World distribution: Lesser Sunda Islands eastwards to Hawaii, but somewhat sporadic, not in Micronesia; New Guinea and Solomon Islands.

Location of types:

♂, ♀, in Genoa Museum.

Material examined:

BANKS ISLAND: Vanua Lava, Sola, 5/11.VIII.1958, 1 ♂, B. Malkin (BISHOP).

ESPIRITU SANTO: Apuna river, camp 2, 146 m, 30.VIII.1971-2.IX.1971, 2 ♀, G. F. Gross (SAM); Namatasopa, 300 m, 29.VIII.1957, 1 ♂, 2 ♀, J. L. Gressitt; Namatasopa, 400 m, 31.VIII.1957, light trap, 1 ♀, J. L. Gressitt; Luganville, 23/28.VII.1958, 1 ♀, 1 larva, B. Malkin (BISHOP).

MAEWO: Above Nasua, 180+ m, 4.IX.1958, 4 ♀, 3 larvae, B. Malkin (BISHOP).

AOBA: Dunduy, 6/8.IX.1958, 1 larva, B. Malkin (BISHOP).

MALEKULA: From rotten log, gentle slope on broad ridge, 1 km NNW of summit of Mt. Yang'abalé, 45 km E of Tisvel village, 1.X.1971, 1 ♂, 7 larvae, K. E. Lee; Notophyll vine forest, 16° 17' S, 167° 26' E, NH 58, 1.X.1971, 3 larvae, K. E. Lee (SAM); Amok, 17.IX.1958, 1 ♂, 1 ♀, B. Malkin (BISHOP).

EPI: Ringdove Bay, 21.VII.1900, 1 ♂, 1 ♀, J. J. Walker (BRIT. MUS.).

ERROMANGA: Vicinity of Ipotak, 3.VIII.1971, 1 ♀, G. F. Gross; Nuankau river camp, 7.VIII.1971, 1 ♀, G. F. Gross (SAM).

TANNA: No locality, VIII.1900, 1 ♂, 1 ♀, J. J. Walker (BRIT. MUS.).

SPONGIPHORINAE

Two species of this subfamily are now recorded from the New Hebrides, both in the genus *Marava* Burr.

Key to species

1. General colouration reddish-brown, or with head, pronotum, and elytra blackish; wings, when present broadly yellow at bases; forceps of male with branches evenly arcuate, bases not broadened, each branch with one or two inner teeth (Fig. 21); forceps of female with a small inner tooth near base of each branch (Fig. 20)

Marava arachidis (Yersin)

- General colouration blackish, wings usually present and whitish, blackish on external margins; pronotum broadly white laterally and posteriorly; abdomen often reddish medially or posteriorly and forceps usually pale at bases; forceps of male strongly curved, usually with a wider part at base of each branch (Fig. 10), sometimes without (Fig. 9); forceps of female without a small inner tooth at base *Marava feae* (Bormans)

***Marava arachidis* (Yersin)**

Figs. 20, 21

- Forficula arachidis* Yersin, 1860, *Ann. Soc. ent. France* **8** (3): 509 (Marseilles, France, introduced).
Prolabia arachidis (Yersin); Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 201 (Erromanga).
Marava wallacei (Dohrn); Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 202 (Malekula).
Marava arachidis (Yersin); Hincks, 1954, *Proc. R. ent. Soc. Lond.* (B) **23**: 162.

Variable in colour and in development of elytra and wings, together with size of eyes. Two forms are concerned in the records from the New Hebrides.

(1) Elytra and wings normally developed; blackish to dark reddish-brown, elytra usually paler, wings partially yellow, legs mainly dark, tarsi yellow (Fig. 21). Eyes usually large.

(2) Elytra short, wings absent or concealed; reddish to yellowish-brown, legs yellow, abdomen reddish often darkened laterally (Fig. 20). Eyes smaller.

Each branch of male forceps weakly curved, with two inner teeth (Fig. 21) or with one tooth absent; pygidium basically pentagonal (Fig. 21), but somewhat variable. Each branch of female forceps shorter, branches more or less contiguous (Fig. 20).

Length of body 5-9 mm, *forceps* 1.5-2.75 mm (males), 0.75-1.25 mm (females).

World distribution: Cosmopolitan, in all faunal Regions, often as an adventive; form 1 is more typical of the Oriental and Australasian Regions,

whilst form 2 appears to dominate in the Neotropical and Ethiopian Regions and in the Pacific.

Location of types:

♂, ♀ in the Paris Museum.

Material examined:

ESPIRITU SANTO: Malau village, Big Bay area, 22.VIII.1971, 1 ♀ (form 2), G. F. Gross (SAM).

MALEKULA: Ounua, III/IV.1929, 1 ♂ (form 1), L. E. Cheesman (BRIT. MUS.) (specimen recorded in Hincks, 1952).

***Marava feae* (Dubrony)**

Figs. 9, 10

Labia feae Dubrony, 1879, *Annali Mus. civ. Stor. nat. Giacomo Doria* **14**: 368 (New Guinea and Key Islands).

Marava feae (Dubrony); Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 201 (Espiritu Santo).

Black, rather dull, pronotum broadly whitish laterally and posteriorly, elytra usually unicolorous but sometimes whitish laterally and along posterior margins; wings, when present, largely whitish; posterior abdominal tergites often more or less reddish, forceps black, base and sometimes apex reddish or yellowish (Fig. 9). Elytra and wings usually fully developed but the elytra are short and the wings absent or concealed in the present specimens. Each branch of male forceps strongly curved, usually with a wider base (Fig. 10) but present specimens have simple forceps (Fig. 9); pygidium broad, usually with two posterior teeth; forceps of female with simple, straight branches, more or less contiguous.

Length of body 5-6 mm, *forceps* 1-1.25 mm.

World distribution: New Guinea eastwards to Caroline Islands and south to Australia, but present known distribution is sporadic.

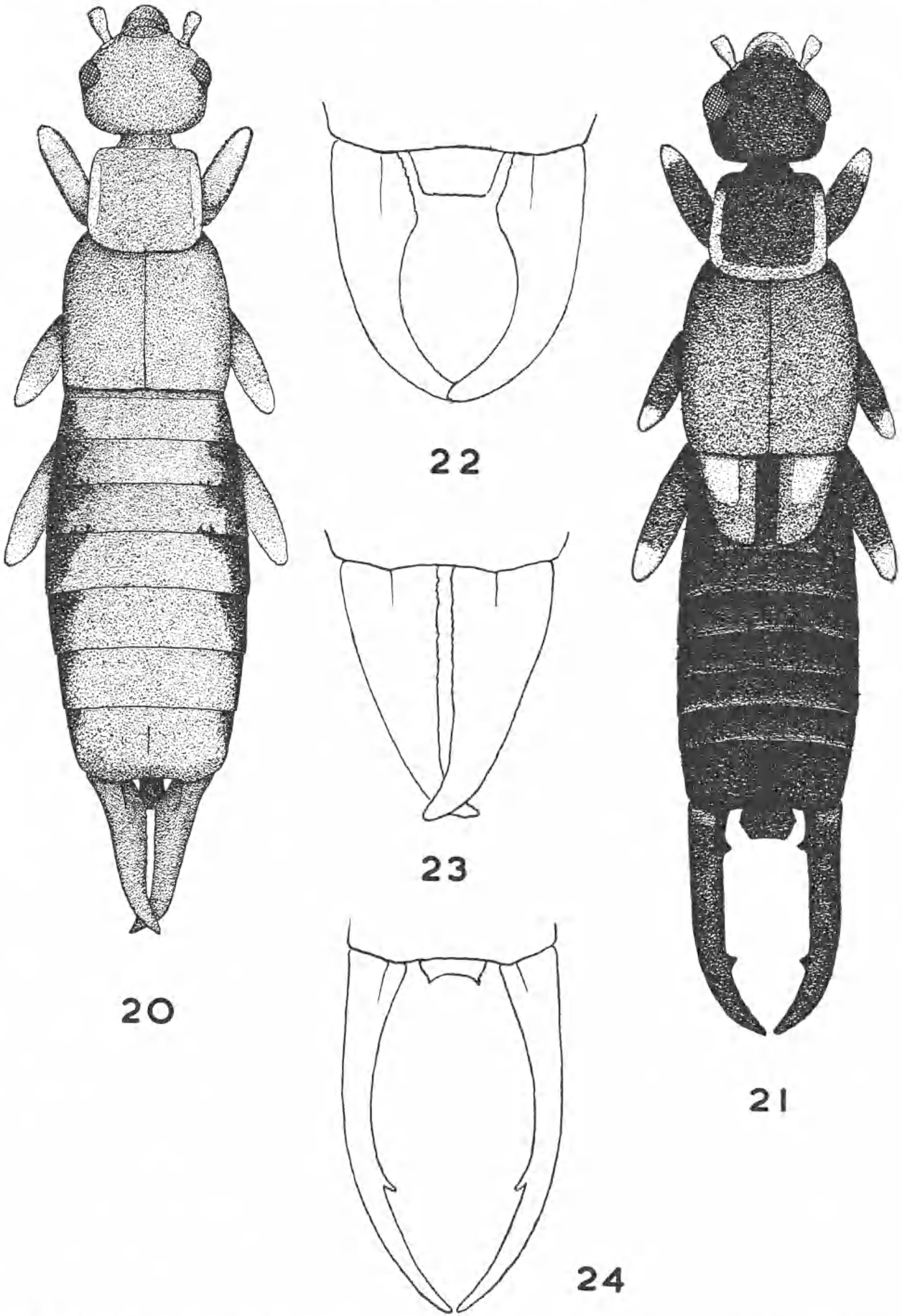
Location of types:

♂, ♀ in the Genoa Museum.

Material examined:

ESPIRITU SANTO: no exact locality, VIII-IX.1929, 1 ♂; VIII.1921, 1 ♀, L. E. Cheesman (BRIT. MUS.).

The above specimens are recorded in Hincks (1952) and are unusual in having no visible wings, in having the elytra broadly whitish posteriorly and laterally, and by the simple male forceps.



Figs. 20-21, *Marava arachidis* (Yersin)—20, wingless form, female—21, winged form, male. Figs. 22-24, forceps—22-23, *Labia curvicauda*, male and female—24, *Hamaxas nigrorufus* (Burr), male.

CHELISOCHIDAE

Mainly Oriental and Australasian in distribution. Two species are recorded from the New Hebrides, both in the genus *Chelisoches* Scudder.

Key to species

1. Pronotum parallel-sided, longer than broad: black; head, pronotum, and elytra metallic bluish-green, shoulders, sutures, and wings violet

Chelisoches cheesmanae Hincks
Pronotum as broad as long or nearly so, more or less widened posteriorly; black generally, but sometimes elytra and wings metallic bluish or green or sometimes the whole insect is almost uniformly reddish-brown

Chelisoches morio (Fabricius)

***Chelisoches morio* (Fabricius)**

Forficula morio Fabricius, 1775, *Syst. Ent.*: 270 (Tahiti).

Chelisoches morio (Fabricius); Hincks, 1938, *J. Fed. Malay States Mus.* **18**: 313 (New Hebrides).

Chelisoches morio (Fabricius); Hincks, 1947, *Entomologist's mon. mag.* **83**: 67 (Espiritu Santo).

Chelisoches morio (Fabricius); Rehn, 1948, *Trans. Am. ent. Soc.* **74**: 162 (Efate; Erromanga; Tanna; Aneityum; Aniwa ?; Fortuna = Futuna).

Chelisoches morio (Fabricius); Hincks, 1952, *Ann. Mag. nat. Hist.* (12) **5**: 202 (Malekula; Espiritu Santo; Efate; Mai).

Black, rather shining, antennae black, one or more distal segments white; tarsi yellowish-brown. Sometimes with a bluish or greenish metallic sheen or sometimes almost uniformly reddish-brown. Similar in structure to *cheesmanae* (Fig. 25), but with the pronotum relatively shorter and usually widened posteriorly. Male forceps variable in length and structure, one form similar to those of *cheesmanae*, or with the basal inner dentation extending down to and including the distal teeth or tooth. Forceps of female simple, but variable in length.

Length of body 14-18 mm, *forceps* 4-7 mm.

World distribution: Nearctic, Palaearctic, and Ethiopian Regions as adventive; Oriental Region more commonly, and most common in Pacific and Papuan Regions.

Location of types:

♂, ♀ in the British and Kiel Museums.

Material examined:

BANKS ISLANDS: Vanua Lava, Sola, 5/11.VIII.1958, 2♂, 1♀, 2 larvae, B. Malkin (BISHOP).

ESPIRITU SANTO: Malau village, Big Bay area, 23.VIII.1971, 1♂, G. F. Gross; Malau village, 23.VIII.1971, at light, 1 larva, G. F. Gross; Apuna river, camp 2, 146 m, 26/28.VIII.1971, 2 larvae, G. Robinson; Apuna river, camp 2, in leaf bases of *Pandanus*, 28/29.VIII.1971, 2♂, 1♀, K. E. Lee and J. C. Buckerfield; Apuna river, camp 2, 10 km SSW of Malau village, Big Bay area, from litter and leaf bases of *Pandanus*, flat terrace on E bank, 27/29.VIII.1971, 1♂, 1♀, 2 larvae, K. E. Lee and J. C. Buckerfield; Apuna river, camp 2, 4.IX.1971, 2♀, G. F. Gross; Apuna river, camp 3, at light, 8.IX.1971, 1♀, 1 larva, G. F. Gross (SAM); Luganville, 23/28.VII.1958, 5♀, 1 larva, B. Malkin; Narango, 90 m, VI.1960, 3♂, 2♀, 1 larva, W. W. Brandt; SW, above Namatasopa, 400 m, 30.VIII.1957, 1♂, 1♀, J. L. Gressitt; Second Channel, IX.1942, 1♀, R. L. Dautt; no exact locality, VIII.1950, 1♀, N. L. H. Krauss; no exact locality, 13.I.1921, 1♂, F. P. Drowne (BISHOP).

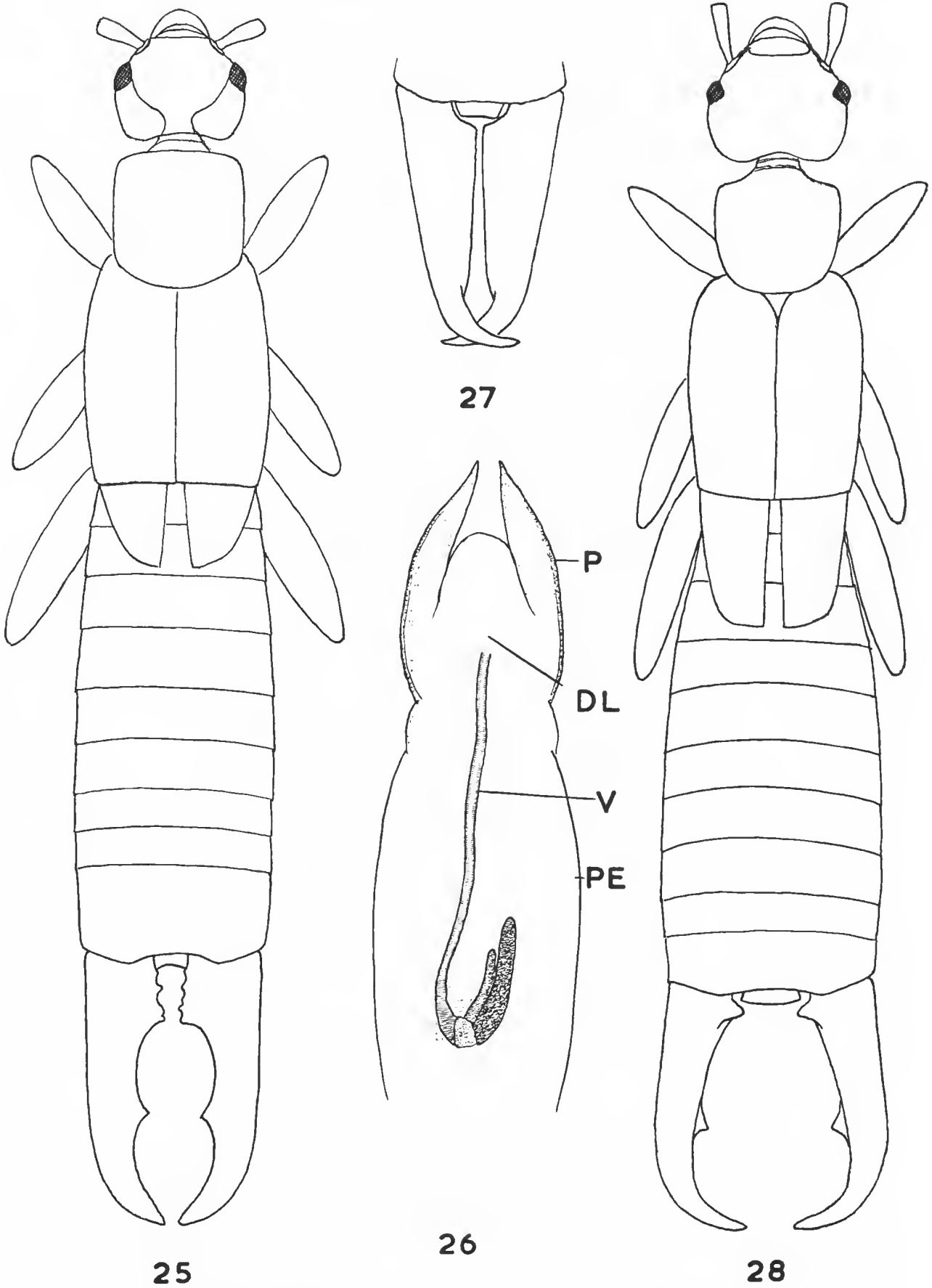
MAEWO: Above Nasaua, 150—180+ m, 4.IX.1958, 1♂, 6♀, 2 larvae, B. Malkin (BISHOP).

AOBA: Dunduy, 6/8.IX.1958, 1♂, 3♀, 1 larva, B. Malkin (BISHOP).

MALEKULA: Leaf bases of *Pandanus* in gully, 3 km ENE of Tisvel village, 1.X.1971, 2♂, 1♀, 1 larva, K. E. Lee and J. C. Buckerfield; from logs, Hurrnamburr, low-lying swamp, 500 m, E of head of Marine Lagoon, 4 km SSE of Wintua, SW Bay, 9.X.1971, 1♂, K. E. Lee (SAM); Amak, 1 000ft., 15/18.IX.1958, sweeping, 1♂, B. Malkin; Tenmark, 14.IX.1958, 1 larva, B. Malkin (BISHOP).

EFATE: La Cascade, W of Vila, 13.VII.1971, 1♀, 1 larva, G. F. Gross; in secondary forest, de Gaillande estate, Tagabe, 15.VII.1971, 1 larva, G. F. Gross (SAM); Efate, 12.VI.1900, 1♂, J. J. Walker (BRIT. MUS.); NW, Maat (Mat Ambryn Vill.) 3 m, 5.VIII.1957, 1♂, 2♀, 3 larvae, J. L. Gressitt; NW, Limestone plateau, N of Maat, 100 m, 19/20.VIII.1957, 5♂, 10♀, 3 larvae, J. L. Gressitt; Vila, 0-50 m, II.1970, 1♂, 1 larva, N. L. H. Krauss (BISHOP).

ERROMANGA: Nuankau river camp, 7/8.VIII.1971, 2♂, 1♀, G. F. Gross; from *Pandanus* beside secondary milling road, 500 m SW of Nuankau river bridge, 10 km WSW of Ipotak, 8.VIII.1971, 1 larva, J. C. Buckerfield (SAM); 11 km W of Ipotak, 100-200 m, II.1970, 1♀, N. L. H. Krauss (BISHOP).



Figs. 25-26, *Chelisoches cheesmanae* Hincks—25, male—26, male genitalia.
 Figs. 27-28, *Auchenomus insularis* sp.n.—27, female forceps—28, male. (DL=distal lobe; P=paramere; PE=penis; V=virga).

TANNA: Isokoai (Enpinau), 28.VII.1971, at light, 1 ♂, 1 ♀, G. F. Gross and G. Robinson (SAM); Tanna Is., 1904, 1 ♂, J. J. Walker (BRIT. MUS.).

ANEITYUM: Vicinity of Anelcauhat, 20/21.VII.1971, 1 ♂, 1 larva, G. F. Gross (SAM); Red Crest, 1200ft., 3 m NE of Anelcauhat, III.1955, 2 ♂, 3 ♀, 2 (abdomen missing), L. E. Cheesman; rain forest, 500-1000ft., XI.1954, 1 ♂, L. E. Cheesman (BRIT. MUS.).

Chelisochees cheesmanae Hincks

Figs. 25, 26

Chelisochees cheesmanae Hincks, 1952, *Ann. Mag. nat. Hist.* (12) 5: 703 (Banks Is., Vanua Lava).

Similar in structure to *morio*, but rather more robust (Fig. 25); separable mainly by the colouration, and by the shape of the pronotum, of which the latter character is the more satisfactory. The forceps are robust but are similar to some forms of *morio* in shape. The genitalia of *cheesmanae* (Fig. 26) are similar to those of *morio* but the parameres are more slender and the two sclerites associated with the base of the virga are unequal in size whilst those of *morio* examined are usually subequal in size. The differences, however, are small.

Length of body 13 mm, forceps 5 mm.

World distribution: New Hebrides, endemic.

Remarks: No other specimen has been recorded and the type remains unique.

Location of type:

Holotype ♂ in the British Museum.

Hamaxas nigrorufus (Burr)

Fig. 24

Spongiphora nigrorufa Burr, 1902, *Term. Fuzet.* 25: 480 (New Guinea).

Hamaxas papuanus Burr, 1909, *Nova Guinea* 9: 23.

Spongovostox nigrorufus (Burr); Burr, 1911, *Genera Insectorum* 122: 52.

Hamaxas nigrorufus (Burr); Burr, 1916, *J. R. Micr. Soc.* 1916: 10.

Blackish in colour, legs dark red to blackish, sometimes yellow; abdomen and forceps dark red or with abdomen darkened. A rather depressed species. Elytra and wings punctured and pubescent, always fully developed. Each branch of male forceps arcuate, with one inner tooth, pygidium short with posterior margin concave and postero-lateral angles produced (Fig. 24). Branches of female forceps shorter, wider near base, narrowed distally and more or less straight and contiguous, pygidium angular.

Length of body 7-9 mm, forceps 3-4.5 mm (males), 1.5-2.5 mm (females).

World distribution: From Celebes eastwards to New Guinea and Solomon Islands, and extending across the Pacific to Hawaii.

Location of type:

♂, ♀ in the Hungarian National Museum.

Material examined:

ESPIRITU SANTO: Apuna river camp, I.IX.1971, 1 ♀, G. F. Gross (SAM); Narango, 90 m, VI.1960, 1 ♂, W. W. Brandt (BISHOP).

EFATE: NW Limestone plateau, N of Maat, 100 m, 19.VIII.1957, 1 ♀, J. L. Gressitt (BISHOP).

ERROMANGA: Kauri camp (on Nuankau River) 3.VIII.1971, 2 ♀, G. F. Gross (SAM).

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